

Title (en)
LITHIUM SECONDARY BATTERY AND MANUFACTURING METHOD THEREFOR

Title (de)
LITHIUMSEKUNDÄRBATTERIE UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)
BATTERIE SECONDAIRE AU LITHIUM ET SON PROCÉDÉ DE FABRICATION

Publication
EP 4213237 A4 20240417 (EN)

Application
EP 22816476 A 20220602

Priority
• KR 20210071872 A 20210603
• KR 2022007846 W 20220602

Abstract (en)
[origin: EP4213237A1] The present invention relates to a lithium secondary battery and a method of manufacturing the lithium secondary battery. In the lithium secondary battery, a positive electrode additive represented by Formula 1 as an irreversible additive is included in a positive electrode mixture layer, and a ratio (CC/DC) of an initial charge capacity (CC) to an initial discharge capacity (DC) is adjusted within a specific range, thereby reducing the amount of oxygen gas generated in the charging/discharging of the lithium secondary battery, and at the same time, inhibiting self-discharging and improving an operating voltage by improving the open circuit voltage of the battery in initial activation and/or subsequent high-temperature storage. Therefore, the lithium secondary battery including the same can be effectively used as a power source for mid-to-large devices such as electric vehicles.

IPC 8 full level
H01M 4/131 (2010.01); **H01M 4/02** (2006.01); **H01M 4/133** (2010.01); **H01M 4/36** (2006.01); **H01M 4/38** (2006.01); **H01M 4/48** (2010.01); **H01M 4/505** (2010.01); **H01M 4/525** (2010.01); **H01M 4/587** (2010.01); **H01M 4/62** (2006.01); **H01M 10/052** (2010.01); **H01M 10/0525** (2010.01); **H01M 10/42** (2006.01)

CPC (source: EP KR US)
H01M 4/131 (2013.01 - EP KR US); **H01M 4/133** (2013.01 - US); **H01M 4/134** (2013.01 - US); **H01M 4/364** (2013.01 - EP US); **H01M 4/386** (2013.01 - EP); **H01M 4/483** (2013.01 - EP US); **H01M 4/485** (2013.01 - EP); **H01M 4/505** (2013.01 - KR US); **H01M 4/525** (2013.01 - EP KR US); **H01M 4/587** (2013.01 - US); **H01M 4/62** (2013.01 - KR US); **H01M 4/625** (2013.01 - EP KR); **H01M 10/052** (2013.01 - KR); **H01M 10/0525** (2013.01 - EP KR US); **H01M 10/058** (2013.01 - KR); **H01M 10/44** (2013.01 - US); **H01M 10/446** (2013.01 - KR); **H01M 4/0447** (2013.01 - KR); **H01M 2004/021** (2013.01 - KR); **H01M 2004/027** (2013.01 - US); **H01M 2004/028** (2013.01 - KR US); **Y02E 60/10** (2013.01 - EP); **Y02P 70/50** (2015.11 - EP)

Citation (search report)
• [X] US 2020365904 A1 20201119 - JEON HYELIM [KR], et al
• [X] EP 3605678 A1 20200205 - LG CHEMICAL LTD [KR]
• [X] KR 20130079109 A 20130710 - UNIST ACADEMY IND RES CORP [KR], et al
• [X] KR 20190124038 A 20191104 - LG CHEMICAL LTD [KR]
• [X] WO 2020111580 A1 20200604 - POSCO [KR], et al
• See also references of WO 2022255817A1

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA ME

Designated validation state (EPC)
KH MA MD TN

DOCDB simple family (publication)
EP 4213237 A1 20230719; EP 4213237 A4 20240417; CN 116349034 A 20230627; JP 2023544809 A 20231025; KR 20220164092 A 20221213; US 2023387413 A1 20231130; WO 2022255817 A1 20221208

DOCDB simple family (application)
EP 22816476 A 20220602; CN 202280006837 A 20220602; JP 2023521395 A 20220602; KR 20210071872 A 20210603; KR 2022007846 W 20220602; US 202218031387 A 20220602